

CASE REPORT

PARTURIENT AND PERINATAL DENGUE HEMORRHAGIC FEVER

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Abstract. A Thai woman in the shock stage of dengue hemorrhagic fever delivered a healthy infant by normal delivery. She had high, prolonged fever for five days, hepatomegaly, thrombocytopenia and a right pleural effusion. The serology performed later established a diagnosis of secondary dengue infection. She had no serious complications except for postpartum anemia. The newborn became febrile at the 48th hour of life. He had fever for 2 days, hepatomegaly, thrombocytopenia and a right pleural effusion. Dengue virus type 1 was detected from his serum by polymerase chain reaction (PCR). Although he developed prolonged, marked thrombocytopenia (12 days), his illness was uncomplicated. He recovered uneventfully and was discharged with his mother. This report was one of dengue vertical transmission with dengue hemorrhagic fever in humans.

Dengue infection is hyperendemic in Thailand and many other countries. Dengue hemorrhagic fever (DHF), a severe form of dengue infection, occurs mostly in children. In recent years, there has been a notable increase in dengue infection/DHF cases in both the very young and in aged adults. Pregnant women with dengue infection/DHF and vertical transmission of dengue to their infants had been increasingly reported. The majority of dengue vertical transmission presents as a mild febrile illness, or dengue fever (Fernandez *et al*, 1994; Thaithumyanon *et al*, 1994; Bunyavejchevin *et al*, 1997; Chotigeat *et al*, 2000; Kerdpanich *et al*, 2000). A minority have severe complications of the central nervous system, bleeding, death (Chye *et al*, 1997) and dengue shock syndrome with gastrointestinal bleeding (Poli *et al*, 1991). The infant in this report had clinical and laboratory findings compatible with dengue hemorrhagic fever without complications.

Mother

A 19-year-old woman was admitted to a district hospital with labor pains. She was *primi gravida* and 40 weeks gestational age. She was afebrile, but with five successive days of fever before admission. Her hematocrit was 32% and platelet count was 88,000/mm³. She was referred to Petchabun Hospital with a suspicion of dengue hemorrhagic fever. At Petchabun Hospital, labor pain progressed with bloody show. She was conscious with vital signs: temperature of 36.5°C, blood pressure 110/80 mmHg, pulse rate 100 beats per minute and respiratory rate 24 per minute. The fetus was in left

occiput anterior (LOA) position with heart rate of 136 beat/minute. The delivery was normal, spontaneous vaginal, a few minutes after admission. The placenta was normal in appearance, 700 grams weight, delivered 8 minutes after the infant birth. The estimated blood loss was 300 ml. The mother was well after delivery. Liver size was 2 cm below right costal margin, spleen could not be palpated and the tourniquet test was positive. Laboratory investigations after delivery are presented in Table 1. Therapeutic managements included a packed red cells transfusion and intravenous fluids for 2 days after fever (5% dextrose Ringers acetate). Close observation revealed the general condition and vital signs were normal, hematocrits 1 and 2 days after blood transfusion were 30% and 29 % respectively.

Infant

The infant was a male, 3,180 g body weight, 50 cm in length with Apgar scores of 9,10 at 1,5 minutes respectively. He had a fever of 38.5°C at the 48th hour of life. The fever was between 38-38.5°C persisting for 2 days. Physical examinations during the febrile stage revealed a liver 2 cm below the right costal margin, the spleen was just palpable below the left costal margin and the tourniquet test was positive. Laboratory investigations before and after fever are presented in Table 2.

Management of the infant in this report was the same as in older children. Intravenous fluid (5% dextrose in normal saline half strength) was introduced with a minimal rate (maintenance) to normalize hematocrit and vital signs. Close observation of the general condition of the body included

Table 1
Laboratory investigations of the mother after delivery.

Date	Laboratory investigations
July 31, 2002 ^a	CBC:Hb 76 g/l, Hct 23%, WBC 12,900, Platelets 69,000 N 65%, L 21%, ATL 10%, M 4% AST/ALT : 65/32 units/l PT/PTT : 19.5 (10-14)/42.3(25-38) sec INR 2.85 CXR : pleural effusion present (Rt lateral decubitus)
August 9, 2002	Dengue IgM,G : 0,108 units
August 19, 2002	Dengue IgM,G : 0,183 units HI 1 : 2,560
September 14, 2002 ^b	Dengue IgM,G : 213,201 units HI >1 : 5,120 Dengue IgM,G : 13,127 units JE IgM,G : 11,127 units

^aSecond day postpartum, ^bFollow-up day.

Table 2
Laboratory investigations of infant before and after fever.

Date	Laboratory investigations									
	Hct%	Hb(g/l)	WBC	Platelets	N	L	ATL	M	E	B
July 31, 2002 ^a	52	172	13,400	328,000	68	24	-	4	3	1
August 3, 2002 ^b	51	171	6,400	17,000	37	40	15	7	1	-
August 4, 2002	44	150	7,500	7,000	23	65	3	9	-	-
August 5, 2002	45	154	12,300	8,000	10	49	23	16	2	-
August 6, 2002	44	154	10,600	5,000	7	68	21	1	3	-
August 14, 2002 ^c	39	131	12,100	100,000	27	58	2	9	3	1
August 19, 2002 ^d	39	134	17,900	392,000	37	50	1	12	-	-
August 7-13, 2002	Platelets=20,000; 39,000; 53,000; 38,000; 13,000; 16,000; 35,000 respectively									
August 4, 2002	AST/ALT		:185/69,	PT/PTT : 13.3(10-14)/92.3(25-38) sec INR 1.25						
August 6, 2002			:145/56,	PT/PTT : 12.5(10-14)/99.1(25-38) sec INR 1.09						
August 8, 2002			:145/25							
August 11, 2002			:85/18							
August 14, 2002 ^c			:92/36							
August 19, 2002 ^d			:43/17							
August 2, 2002	Dengue IgM,G		: 0,2	HI<1:20	Dengue type 1 (PCR)					
August 9, 2002			: 92,4	HI<1:20						
August 4, 2002	CXR (Rt Lateral decubitus):pleural effusion present with pleural effusion index 0.6/5.5 (0.11)									

^aSecond day of life, 1 day before fever; ^bFirst afebrile day after fever defervescence; ^cDischarged day; ^dFollow up day.

vital signs, intake/output, hematocrit and observation for abnormal bleeding until 48 hours after the fever ceased. The infant was well (good appetite, normal vital signs, no hemoconcentration and no abnormal bleeding) in both the febrile and afebrile stage. He was discharged on the 12th day, after the platelet count was normal. At follow up, 5 days after discharge, the platelet count had a four fold increase and the liver enzymes declined to normal. Vital signs, body weight intake/output and hemat-

ocrit of the infant 2-afebrile days after fever were normal. Chest x-ray of the patient is shown in Fig 1.

In dengue-endemic areas, physicians must be aware that dengue infection of adults may occur. The modal age of patients who have dengue hemorrhagic fever associated with secondary dengue infection has increased by several years (Teeraratkul and Limpakarnjanarat, 1990). Adults with special conditions, such as surgical diseases (*eg* appendi-

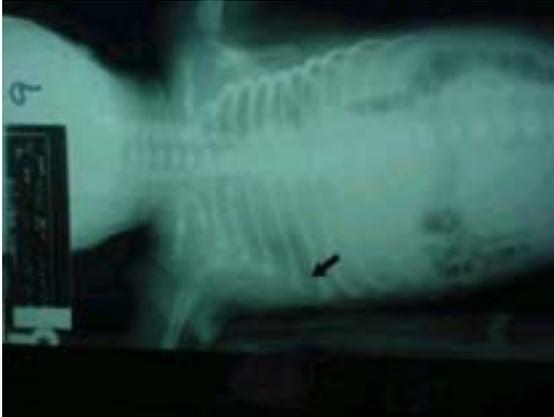


Fig 1—Chest x-ray (right lateral decubitus position) : shows a pleural effusion.

citis), pregnant women with dengue infection/DHF have a higher risk of bleeding due to a traumatic procedure superimposed on the vasculopathy, coagulopathy and thrombocytopenia. Elective surgery must be deferred if a dengue infection is suspected, especially if vasculopathy, coagulopathy or thrombocytopenia exist.

In emergency conditions, such as in this report where the pregnant woman was in the labor in shock stage of dengue hemorrhagic fever (confirmed later), she should be attended with careful monitoring of the platelet count and coagulative function. Replacement therapy should be promptly instituted if hemorrhage results from hemostatic abnormalities. She fortunately had no serious complications except for postpartum anemia. There have been reports of severe postpartum bleeding (Thaithumyanon *et al*, 1994; Chotigeat *et al*, 2000). Concealed bleeding can be a cause of postpartum anemia and could have existed since she was at the district hospital. A hematocrit of 32% is unusual in the shock stage of DHF. The infant in this report presumably acquired his infection due to dengue virus type 1 from his mother. Dengue virus could not be detected from his mother's serum and cord blood because of a delay in testing but serology confirmed secondary dengue infection. The incubation period of 2 days in this infant is too short for dengue infection caused by mosquito bite [normal, 4-12 days (Sabin, 1952)]. He must have become infected in utero. Most infants with reported dengue vertical transmission are only dengue infection or dengue fever. The infant in this report had clinical manifestations and laboratory investigations compatible with dengue hemorrhagic fever (WHO, 1997). He had a right pleural effusion due to plasma leakage although hemoconcentration was

not demonstrated. He had no other complications except for a prolonged duration of thrombocytopenia (12 days) but less than that has been reported (2 months) (Chotigeat *et al*, 2000), and recovered uneventfully.

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